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MCDERMOTT WILL & EMERY LLP
600 13TH STREET, N.W.
WASHINGTON, DC 20005-3096

EXAMINER

THOMPSON, JAMES A

ART UNIT	PAPER NUMBER
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2624

DATE MAILED: 09/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/585,339

Applicant(s)

MIAHIMA ET AL.

Examiner

James A. Thompson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 June 2005 and 14 July 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) _____ is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-16 and 18-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 June 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 7/14/05.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 28 June 2005 have been fully considered but they are not persuasive.

Regarding page 13, line 1 to page 15, line 22: Applicant argues that the interface controller taught by Stephenson (US Patent 5,757,388) does not inherently provide two separate logical levels, alleging that said inherency is merely speculative. Applicant then quotes three passages from Stephenson. Firstly, only the third passage from Stephenson is related at all to the interface controller (referred to as a "latch driver" in Stephenson). Furthermore, Applicant has not addressed the passages that were specifically cited by Examiner in the previous office action, dated 08 March 2005, which demonstrates the inherency of the two logical levels. In said previous office action, Examiner cited column 2, lines 54-58 of Stephenson and column 2, lines 60-63 of Stephenson in describing the function of the latch driver. These cited passages state:

"The ink jet printer 12 has an active latch 24 and a passive latch 28 that permits the printer to be secured over the camera display 18. In this embodiment the latches 24 and 28 are hooked and secure to matching detail 24a formed in the sockets 20 and 22 of camera 10." [column 2, lines 54-58 of Stephenson]

"A latch driver 26 permits the selective securing and release of the ink jet printer 12 from camera 10 under control of printer electronics 30." [column 2, lines 60-63 of Stephenson]

Furthermore, one of Applicant's cited portions of Stephenson states:

"The use of the latch driver 26 under the control of printer electronics 30 ensures that ink jet printer

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12 is not detached from the electronic camera 10 during image transmission from camera display 18 and printer receiver device 32." [column 4, lines 13-16 of Stephenson]

The latch driver does not in and of itself secure the printer over the camera display. The latches (figure 2(24,28) of Stephenson) perform the physical latching (column 2, lines 54-58 of Stephenson). The latch driver controls the selective securing and release of the ink jet printer from the camera (column 2, lines 60-63 of Stephenson), and thus controls the physical motions of the latches. The control is performed to make sure that the ink jet printer and electronic camera are not detached during image transmission (column 4, lines 13-16 of Stephenson). Since the latch driver controls the physical functioning of the latches, some form of output must be provided. If there is no output, then there is nothing that will cause a change in the latches, thus causing the latches to either securely latch the ink jet printer over the camera, or to release the ink jet printer from the camera. Thus, some form of output provided by the latch driver is clearly inherent.

At this point, Examiner would also like to address Applicant's remarks on page 14, lines 7-8 and page 15, lines 6-10 where Applicant states that the "latch driver 26 cannot be realistically considered to be an interface controller that can output such logical level signals *to printer electronics 30*" [emphasis added] and that the "latch drive 26 is NOT required to output a first logical level signal to the printer electronics 30 when the ink jet printer 12 is secured to the camera 10 as well as to output a second logical level signal to printer electronics 30 when the ink jet printer 12 is released from the camera 10". Claim 1 does not recite a specific location to

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which the output signals must be output. Claim 1 recites "the interface controller outputting a first logic level signal when the plug is inserted into the connector and outputting a second logical level signal when the plug is not inserted into the connector". The control unit recited in claim 1 controls "in response to the first logical level signal output by the interface controller, the printing unit so as to prepare for image forming according to the image data from the external device". In other words, the control unit does not need to specifically receive the output from the interface controller. The control unit performs control based on the fact that the first logical level signal has been output by the interface controller. In the case of Stephenson, this occurs when the printer electronics 30 controls the latch driver 26 to output the first logical level signal. The printer electronics 30 does not need to receive the output signal from the latch driver 26 since the printer electronics 30 *provided* the output signal to the latch driver.

Now, since it has been established above that some form of output provided by the latch driver is inherent, the only question that remains regards the nature of the output signal. Is the output signal provided by the latch driver specifically one of two possible logical level signals? Firstly, there are only two possible output signals, secure and release. Thus, the output signal provided must inherently be a first output signal or a second output signal. Secondly, the output signal provided by the latch driver is given to said latch driver by the printer electronics (column 2, lines 60-63 and column 4, lines 13-16 of Stephenson). The printer electronics is a digital computational processor of the ordinary type. Digital computational

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processors provide digital signals, also known as logical level signals ("0" and "1" in binary language terminology). Whether the logical level signal provided to the latch driver is a single bit or multiple bits, the received logical level signal must inherently be different in the case of release than the received logical level signal is in the case of secure. Otherwise, there is no distinction between release and secure, and thus no mechanism by which the latch driver may discriminate between the two states. Thus, since the printer electronics provides digital signals to the latch driver indicating either "secure" or "release", it is inherent that the latch driver ("interface controller" in Applicant's claim language) outputs a first logical level signal when the plug is inserted into the connector and outputs a second logical level signal when the plug is not inserted into the connector. Furthermore, after the latch driver 26 outputs the first logical level signal, the active latch 24 is used to signal the start of transmission (column 4, lines 4-6 of Stephenson). Thus, once again, a first and second logical level signal output is clearly inherent in the disclosure of Stephenson.

Regarding page 15, line 23 to page 16, line 11:

Applicant's arguments are based on the present amendments to the claims and not the claims as filed immediately prior to said previous office action. Thus, the newly added limitations are discussed below. The new grounds of rejections presented below have been necessitated by the present amendments to the claims.

Regarding page 16, line 12 to page 17, line 20:

Applicant's arguments are based on the present amendments to the claims and not the claims as filed immediately prior to said previous office action. Thus, the newly added limitations are

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discussed below. The new grounds of rejections presented below have been necessitated by the present amendments to the claims.

Regarding page 17, line 21 to page 18, line 16: In response to applicant's argument that Meese (US Patent 4,532,418) is nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, Meese is reasonably pertinent to the particular problem with which the applicant was concerned, namely the charge and collection of money for the provision of electrical power.

Regarding page 18, line 18 to page 19, line 25: The newly added claim has been fully considered. A detailed discussion of the rejection of the newly added claim is given below.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stephenson (US Patent 5,757,388) in view of Amoni (US Patent 5,884,086).

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Regarding claim 1: Stephenson discloses an image forming apparatus (figure 2 of Stephenson) to which an external device (figure 1 of Stephenson) transmitting image data is to be connected (column 2, lines 40-44 of Stephenson). An electronic camera (figure 1 of Stephenson) is connected to a printer (figure 2 of Stephenson) using a passive (figure 1(22) of Stephenson) and an active socket connection (figure 1(20) and column 2, lines 40-43 of Stephenson).

Said image forming apparatus comprises a detecting unit (figure 2(30(portion)) of Stephenson) for detecting whether the external device has been connected to said image forming apparatus (column 4, lines 13-20 of Stephenson), the detecting unit including a connector (figure 2(24) of Stephenson) configured to receive a plug of a cable attached to the external device (column 2, lines 54-58 of Stephenson); and an interface controller (figure 2(26) of Stephenson) connected to the connector (as can clearly be seen in figure 2 of Stephenson), the interface controller outputting a first logical level signal when the plug is inserted into the connector and outputting a second logical level signal when the plug is not inserted into the connector (column 2, lines 60-63 of Stephenson). In order to establish a physical and electrical connection between the camera and the printer (column 2, lines 54-58 of Stephenson), a plug of a some sort of cable must be received. Otherwise, there can be no electrical connection. In order to selectively secure and release the ink jet printer under the control of the printer electronics (column 2, lines 60-63 of Stephenson), two separate logical level signals are inherent, a first logical level signal in which the plug is inserted into the connector, thus securing the printer to the camera, and a second logical level signal

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when the plug is not inserted into the connector, thus releasing the printer from the camera.

Said image forming device further comprises a printing unit (figure 4 of Stephenson) and a control unit (figure 2(30 (portion)) of Stephenson) for controlling, in response to the first logical level signal output by the interface controller (column 3, lines 41-49 of Stephenson), said printing unit so as to prepare for image forming according to the image data from the external device (column 3, line 65 to column 4, line 6 of Stephenson). The portion of the printing electronics (figure 2 (30) of Stephenson) that performs the functions of the control unit is the control unit and the portion of said printing electronics that performs the functions of the detecting unit is the detecting unit.

Stephenson further discloses that signal data which signals the start of transmission is sent from the external device to the image forming apparatus via the connector (column 4, lines 4-6 of Stephenson), and thus also via the cable connected to said connector (column 2, lines 54-58 of Stephenson); and transmitting image data from the external device to the image forming apparatus (column 3, lines 56-62 of Stephenson).

Stephenson does not disclose expressly that said image data is sent from said external device to said image forming apparatus via said cable.

Amoni discloses transmitting digital data directly through the use of a directly connected cable (figure 7 and column 3, lines 44-48 of Amoni).

Stephenson and Amoni are combinable because they are from the same field of endeavor, namely the transmission of electronic data between electronic devices. At the time of the

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invention, it would have been obvious to a person of ordinary skill in the art to use the enhanced USB connector taught by Amoni in place of the active latch taught by Stephenson and transmit said image data from said external device to said image forming apparatus via said USB cable. The motivation for doing so would have been to be able to provide both power and data transmission in an efficient manner that does not require separate electrical power connections for each device (column 1, lines 31-36 and column 2, lines 32-39 of Amoni). Therefore, it would have been obvious to combine Amoni with Stephenson to obtain the invention as specified in claim 1.

Regarding claim 2: Stephenson discloses an image forming apparatus (figure 2 of Stephenson) comprising a detecting unit (figure 2(30(portion)) of Stephenson) for detecting an external device (column 4, lines 13-20 of Stephenson), the external device transmitting image data (column 4, lines 56-60 of Stephenson), the detecting unit including a connector (figure 2(24) of Stephenson) configured to receive a plug of a cable attached to the external device (column 2, lines 54-58 of Stephenson); and an interface controller (figure 2(26) of Stephenson) connected to the connector (as can clearly be seen in figure 2 of Stephenson), the interface controller outputting a first logical level signal when the plug is inserted into the connector and outputting a second logical level signal when the plug is not inserted into the connector (column 2, lines 60-63 of Stephenson). In order to establish a physical and electrical connection between the camera and the printer (column 2, lines 54-58 of Stephenson), a plug of a some sort of cable must be received. Otherwise, there can be no electrical connection. In order to selectively secure and release the ink jet printer

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under the control of the printer electronics (column 2, lines 60-63 of Stephenson), two separate logical level signals are inherent, a first logical level signal in which the plug is inserted into the connector, thus securing the printer to the camera, and a second logical level signal when the plug is not inserted into the connector, thus releasing the printer from the camera.

Said image forming apparatus further comprises a power supplying unit for supplying power. Said power supplying unit is inherent in the design of the device since, without power, it is impossible for said image forming apparatus to perform any meaningful operation.

Said image forming apparatus further comprises a printing unit (figure 4 of Stephenson) that is driven by the power from the power supplying unit and forms an image (column 4, lines 61-64 and column 5, lines 1-4 of Stephenson) according to the image data from the external device (column 4, line 66 to column 5, line 7 of Stephenson). It is inherent that said printing unit is driven by power from a power supplying unit, since no meaningful operation would otherwise be possible.

Stephenson discloses that said image forming apparatus comprises printer electronics (figure 2(30) of Stephenson), a portion of which is used as the detecting unit discussed above, and a portion of which controls other aspects of the device operation (column 4, lines 13-21 of Stephenson). The control unit is the portion of the printer electronics that performs the functions of said control unit. Said control unit controls the power supplying to the printing unit by said power supplying unit (column 3, lines 45-53 of Stephenson) according to whether the interface controller outputs the first logical level signal

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or the second logical level signal (column 2, lines 60-64 of Stephenson). The power supply is controlled, and thus the printer is able to print or not print based on the readiness condition of the printer (column 3, lines 45-53 of Stephenson), which includes whether (first logical level) or not (second logical level) the printer and the camera are secured (column 2, lines 60-64 of Stephenson).

Stephenson further discloses that signal data which signals the start of transmission is sent from the external device to the image forming apparatus via the connector (column 4, lines 4-6 of Stephenson), and thus also via the cable connected to said connector (column 2, lines 54-58 of Stephenson); and transmitting image data from the external device to the image forming apparatus (column 3, lines 56-62 of Stephenson).

Stephenson does not disclose expressly that the image data is also sent from the external device to the image forming apparatus via the cable.

Amoni discloses transmitting digital data directly through the use of a directly connected cable (figure 7 and column 3, lines 44-48 of Amoni).

Stephenson and Amoni are combinable because they are from the same field of endeavor, namely the transmission of electronic data between electronic devices. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use the enhanced USB connector taught by Amoni in place of the active latch taught by Stephenson and transmit said image data from said external device to said image forming apparatus via said USB cable. The motivation for doing so would have been to be able to provide both power and data transmission in an efficient manner that does not require

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separate electrical power connections for each device (column 1, lines 31-36 and column 2, lines 32-39 of Amoni). Therefore, it would have been obvious to combine Amoni with Stephenson to obtain the invention as specified in claim 2.

4. Claims 4-9 and 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stephenson (US Patent 5,757,388) in view of Amoni (US Patent 5,884,086) and Yokoyama (US Patent 5,694,226).

Regarding claim 4: Stephenson discloses that the printing unit (figure 4 of Stephenson) includes an image forming unit (figure 2(12) and column 3, lines 33-36 of Stephenson) for forming the image on a sheet (column 2, line 65 to column 3, line 10 of Stephenson) according to the image data (column 3, lines 21-25 of Stephenson).

Stephenson in view of Amoni does not disclose expressly that said printing unit includes a fixing unit for fixing the image on the sheet by applying heat.

Yokoyama discloses a printer (figure 1 of Yokoyama), which includes a fixing unit (figure 1(7) of Yokoyama) for fixing the image on the sheet by applying heat (column 6, lines 3-4 of Yokoyama).

Stephenson in view of Amoni is combinable with Yokoyama because they are from the same field of endeavor, namely the control of peripherally connected electronic devices, such as printers and digital cameras. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use a printer that fixes the image on the sheet by applying heat. The motivation for doing so would have been that said printer is a conventional electro-photographic system for

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printing images based on input image data (column 1, lines 13-19 and lines 24-29 of Yokoyama). Therefore, it would have been obvious to combine Yokoyama with Stephenson in view of Amoni to obtain the invention as specified in claim 4.

Regarding claim 6: Stephenson in view of Amoni does not disclose expressly that the control unit controls an amount of the power supplied to the fixing unit so as to keep the fixing unit at a first temperature that is lower than a second temperature for fixing the image on the sheet when the interface controller outputs the second logical level signal, and at the second temperature when the interface controller outputs the first logical level signal.

Yokoyama discloses a control unit (figure 1(9,12,13) of Yokoyama) that controls the amount of power supplied to the fixing unit (figure 1(7) and column 3, lines 7-18 and lines 28-32 of Yokoyama). The heater control unit (figure 1(9) of Yokoyama), the heater-on managing unit (figure 1(12) of Yokoyama) and the heater-off managing unit (figure 1(13) of Yokoyama) comprises a control unit that controls said fixing unit since all three units act as a single unit for the purpose of controlling the temperature of the heater (figure 1(7) of Yokoyama). The amount of power supplied to said fixing unit is changed based upon receipt of an image signal (column 3, lines 26-37 of Yokoyama), such as a camera. Said fixing unit is kept on if image signals are received repeatedly (column 3, lines 38-43 of Yokoyama). Said heater-off and heater-on managing units are enabled based upon a signal relating to the time (column 2, lines 61-65 and column 3, lines 19-25 of Yokoyama). If the time signal enables said heater-off managing unit, then the power to said fixing unit is turned off, thus keeping said fixing unit at

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a lower temperature (column 3, lines 19-25 of Yokoyama), unless image data is received for printing (column 3, lines 26-32 of Yokoyama). If the time signal enables said heater-on managing unit, then said fixing unit is maintained at a pre-heat temperature until image data is received (column 3, lines 1-9 of Yokoyama). When image data is received, said fixing unit is maintained at the temperature needed to output the image (column 3, lines 9-14 of Yokoyama).

Stephenson in view of Amoni is combinable with Yokoyama because they are from the same field of endeavor, namely the control of peripherally connected electronic devices, such as printers and digital cameras. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to control the level of power sent to the fixing unit by using a control unit. Said control unit would control the heater-on and heater-off managing units based on whether or not the printer was secured to the camera, and therefore whether or not the first logical level or second logical level was output by said interface controller, as taught in Stephenson, instead of a signal indicating time, as taught in Yokoyama. Yokoyama teaches that the purpose for using the time signal is so that the image forming device will be on at a pre-heat temperature or off at room temperature (column 1, lines 50-59 of Yokoyama), depending upon the time the image forming device is most likely to be in use (column 2, lines 61-65; column 3, lines 19-25; and column 1, lines 24-26 of Yokoyama). The most likely time for image forming to occur in image forming apparatus taught by Stephenson is when the external device is attached to the image forming apparatus, and the interface controller therefore outputs the first logical level signal. Therefore, it would have been

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obvious to use the detection signal from said detecting unit rather than the time signals. The control unit would turn on the heater-on managing unit when the signal indicates that said external device is connected and turn on the heater-off managing unit when the signal indicates said external device is not connected. The motivation for doing so would have been to conserve the power consumed by the printer (column 1, lines 20-24 of Yokoyama) by adjusting the power to the fixing unit only when the external device is connected. Therefore, it would have been obvious to combine Yokoyama with Stephenson in view of Amoni to obtain the invention as specified in claim 6.

Regarding claim 5: The arguments regarding claim 6 are incorporated herein. The power is changed based on the detection result since the temperature is changed from either the first temperature to the second temperature, or from the second temperature to the first temperature, depending upon the detection result.

Regarding claim 7: The arguments regarding claim 6 are incorporated herein. Since the fixing unit is part of the printing unit, then controlling the amount of power supplied to said fixing unit controls the amount of power supplied to the printer.

Regarding claim 8: Stephenson discloses an image forming apparatus (figure 2 of Stephenson) to which an external device (figure 1 of Stephenson) transmitting image data is to be connected (column 2, lines 40-44 of Stephenson), comprising a detecting unit (figure 2(30(portion)) of Stephenson) for detecting whether the external device has been connected to said image forming apparatus (column 4, lines 13-20 of Stephenson), the detecting unit including a connector (figure 2(24) of

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Stephenson) configured to receive a plug of a cable attached to the external device (column 2, lines 54-58 of Stephenson); and an interface controller (figure 2(26) of Stephenson) connected to the connector (as can clearly be seen in figure 2 of Stephenson), the interface controller outputting a first logical level signal when the plug is inserted into the connector and outputting a second logical level signal when the plug is not inserted into the connector (column 2, lines 60-63 of Stephenson). In order to establish a physical and electrical connection between the camera and the printer (column 2, lines 54-58 of Stephenson), a plug of a some sort of cable must be received. Otherwise, there can be no electrical connection. In order to selectively secure and release the ink jet printer under the control of the printer electronics (column 2, lines 60-63 of Stephenson), two separate logical level signals are inherent, a first logical level signal in which the plug is inserted into the connector, thus securing the printer to the camera, and a second logical level signal when the plug is not inserted into the connector, thus releasing the printer from the camera.

Said image forming device further comprises an image forming unit (figure 2(12) of Stephenson) for forming an image on a sheet (column 2, line 65 to column 3, line 10 of Stephenson) according to the image data that has been transmitted from the external device (column 3, lines 21-25 of Stephenson); and a control unit (figure 2(30(portion)) of Stephenson) for controlling said printing unit so as to prepare for image forming according to the image data from the external device (column 3, line 65 to column 4, line 6 of Stephenson), according to whether the interface controller outputs the first

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logical level signal or the second logical level signal (column 3, lines 42-49 of Stephenson). The portion of the printing electronics (figure 2 (30) of Stephenson) that performs the functions of the control unit is the control unit and the portion of said printing electronics that performs the functions of the detecting unit is the detecting unit.

Stephenson further discloses that signal data which signals the start of transmission is sent from the external device to the image forming apparatus via the connector (column 4, lines 4-6 of Stephenson), and thus also via the cable connected to said connector (column 2, lines 54-58 of Stephenson); and transmitting image data from the external device to the image forming apparatus (column 3, lines 56-62 of Stephenson).

Stephenson does not disclose expressly that the image data is also sent from the external device to the image forming apparatus via the cable; that said image forming device further comprises a fixing unit for fixing the image on the sheet by applying heat, wherein the fixing unit is an electric heater; and that said control unit controls power supplying to the fixing unit.

Amoni discloses transmitting digital data directly through the use of a directly connected cable (figure 7 and column 3, lines 44-48 of Amoni).

Stephenson and Amoni are combinable because they are from the same field of endeavor, namely the transmission of electronic data between electronic devices. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use the enhanced USB connector taught by Amoni in place of the active latch taught by Stephenson and transmit said image data from said external device to said image

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forming apparatus via said USB cable. The motivation for doing so would have been to be able to provide both power and data transmission in an efficient manner that does not require separate electrical power connections for each device (column 1, lines 31-36 and column 2, lines 32-39 of Amoni). Therefore, it would have been obvious to combine Amoni with Stephenson.

Stephenson in view of Amoni does not disclose expressly that said image forming device further comprises a fixing unit for fixing the image on the sheet by applying heat, wherein the fixing unit is an electric heater; and that said control unit controls power supplying to the fixing unit.

Yokoyama discloses a printer (figure 1 of Yokoyama), which includes a fixing unit (figure 1(7) of Yokoyama) for fixing the image on the sheet by applying heat (column 6, lines 3-4 of Yokoyama).

Stephenson in view of Amoni is combinable with Yokoyama because they are from the same field of endeavor, namely printer and image forming control. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use a printer that fixes the image on the sheet by applying heat. Since said control unit controls the power supplied to the printer based on whether the interface controller outputs the first logical level signal or the second logical level signal, said interface controller would therefore likewise control said fixing unit. The motivation for doing so would have been that said printer is a conventional electro-photographic system for printing images based on input image data (column 1, lines 13-19 and lines 24-29 of Yokoyama). Therefore, it would have been obvious to combine Yokoyama with

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Stephenson in view of Amoni to obtain the invention as specified in claim 8.

Regarding claim 9: Stephenson discloses that the external device (figure 1 of Stephenson) is a camera for taking a picture (column 2, lines 28-30 of Stephenson) and generating the image data (column 2, lines 32-37 of Stephenson), said external device including a connecting unit (figure 2(24a) of Stephenson) that is to be connected to the connector (figure 1(20) and column 2, lines 56-58 of Stephenson). The matching detail (figure 2(24a) of Stephenson) is designed to be inserted into the connector of said external device, allowing said external device to be attached to the image forming apparatus (figure 2 of Stephenson) by said matching unit being connected to said connector. Therefore, the matching detail in the external device forms what is essentially the connecting unit.

Regarding claim 11: Stephenson discloses an image forming apparatus (figure 2 of Stephenson) to which an external device (figure 1 of Stephenson) transmitting image data is to be connected (column 2, lines 40-44 of Stephenson), comprising an external device detecting unit (figure 2(30(portion)) of Stephenson) for detecting whether the external device has been connected to said image forming apparatus (column 4, lines 13-20 of Stephenson), the external device detecting unit including a connector (figure 2(24) of Stephenson) configured to receive a plug of a cable attached to the external device (column 2, lines 54-58 of Stephenson); and an interface controller (figure 2(26) of Stephenson) connected to the connector (as can clearly be seen in figure 2 of Stephenson), the interface controller outputting a first logical level signal when the plug is inserted into the connector and outputting a second logical

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level signal when the plug is not inserted into the connector (column 2, lines 60-63 of Stephenson). In order to establish a physical and electrical connection between the camera and the printer (column 2, lines 54-58 of Stephenson), a plug of a some sort of cable must be received. Otherwise, there can be no electrical connection. In order to selectively secure and release the ink jet printer under the control of the printer electronics (column 2, lines 60-63 of Stephenson), two separate logical level signals are inherent, a first logical level signal in which the plug is inserted into the connector, thus securing the printer to the camera, and a second logical level signal when the plug is not inserted into the connector, thus releasing the printer from the camera.

Stephenson further discloses that signal data which signals the start of transmission is sent from the external device to the image forming apparatus via the connector (column 4, lines 4-6 of Stephenson), and thus also via the cable connected to said connector (column 2, lines 54-58 of Stephenson); and transmitting image data from the external device to the image forming apparatus (column 3, lines 56-62 of Stephenson).

Stephenson does not disclose expressly that the image data is also sent from the external device to the image forming apparatus via the cable; that said image forming apparatus further comprises a fixing unit for fixing an image that has been formed on a sheet by applying heat; a switching unit for putting the fixing unit into a fixing mode, in which the fixing unit is kept at a first temperature for fixing the image on the sheet, and a standby mode, in which the fixing unit stands by and a temperature of the fixing unit is lower than the first temperature; and a control unit for controlling the switching

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unit so as to switch the fixing unit from the standby mode to the fixing mode when the interface controller outputs the first logical level signal.

Amoni discloses transmitting digital data directly through the use of a directly connected cable (figure 7 and column 3, lines 44-48 of Amoni).

Stephenson and Amoni are combinable because they are from the same field of endeavor, namely the transmission of electronic data between electronic devices. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use the enhanced USB connector taught by Amoni in place of the active latch taught by Stephenson and transmit said image data from said external device to said image forming apparatus via said USB cable. The motivation for doing so would have been to be able to provide both power and data transmission in an efficient manner that does not require separate electrical power connections for each device (column 1, lines 31-36 and column 2, lines 32-39 of Amoni). Therefore, it would have been obvious to combine Amoni with Stephenson.

Stephenson in view of Amoni does not disclose expressly that said image forming apparatus further comprises a fixing unit for fixing an image that has been formed on a sheet by applying heat; a switching unit for putting the fixing unit into a fixing mode, in which the fixing unit is kept at a first temperature for fixing the image on the sheet, and a standby mode, in which the fixing unit stands by and a temperature of the fixing unit is lower than the first temperature; and a control unit for controlling the switching unit so as to switch the fixing unit from the standby mode to the fixing mode when the interface controller outputs the first logical level signal.

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Yokoyama discloses a printer (figure 1 of Yokoyama), which includes a fixing unit (figure 1(7) of Yokoyama) for fixing the image on the sheet by applying heat (column 6, lines 3-4 of Yokoyama); and a switching unit (figure 1(9) of Yokoyama) that puts said fixing unit into a fixing mode, in which said fixing unit is kept at a first temperature for fixing the image on the sheet (column 3, lines 9-14 and lines 26-32 of Yokoyama), and a standby mode, in which the fixing unit stands by and a temperature of the fixing unit is lower than the first temperature (column 3, lines 7-9 and lines 19-25 of Yokoyama). If image data is received, then the fixing unit is provided power so that it can sustain a temperature suitable for fixing the image on the image recording medium (column 3, lines 9-12 and lines 26-32 of Yokoyama). If image data is not received, then a lower temperature is achieved for said fixing unit. Said fixing unit is either maintained at a preheat temperature level while the image forming device waits for image data (column 3, lines 7-9 of Yokoyama), or said fixing unit attains room temperature while the image forming device waits for image data (column 3, lines 19-25 of Yokoyama). The particular standby mode depends on whether the heater-on managing unit (figure 1 (12) of Yokoyama) portion of the control unit (figure 1(12,13) of Yokoyama) or the heater-off managing unit (figure 1(13) of Yokoyama) portion of the control unit is functioning.

Yokoyama further discloses a control unit (figure 1(12,13) of Yokoyama) for controlling said switching unit so as to switch said fixing unit from the standby mode to the fixing mode when an image signal is detected (column 3, lines 7-12 and lines 22-32 of Yokoyama).

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Stephenson in view of Amoni is combinable with Yokoyama because they are from the same field of endeavor, namely printer and image forming control. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use a printer that fixes the image on the sheet by applying heat. The motivation for doing so would have been that said printer is a conventional electro-photographic system for printing images based on input image data (column 1, lines 13-19 and lines 24-29 of Yokoyama). It would also have been obvious to a person of ordinary skill in the art at the time of the invention to control the level of power sent to the fixing unit by using a switching unit to switch between standby and fixing mode. Furthermore, a control unit would be needed control said switching unit by using the output signal of the interface controller, as taught by Stephenson, instead of a signal indicating time, as taught by Yokoyama. Yokoyama teaches that the purpose for using the time signal is so that the image forming device will be on at a pre-heat temperature or off at room temperature (column 1, lines 50-59 of Yokoyama), depending upon the time the image forming device is most likely to be in use (column 2, lines 61-65; column 3, lines 19-25; and column 1, lines 24-26 of Yokoyama). The most likely time for image forming to occur in image forming apparatus taught by Stephenson is when the external device is attached to the image forming apparatus, and thus the first logical signal level is output by said interface controller. Therefore, it would have been obvious to use the output signal from said interface controller unit rather than the time signals. The control unit would turn on the heater-on managing unit portion of said control unit when the signal indicates that said external device is connected and

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turn on the heater-off managing unit portion of said control unit when the signal indicates said external device is not connected. The motivation for doing so would have been to conserve the power consumed by the printer (column 1, lines 20-24 of Yokoyama) by adjusting the power to the fixing unit so that the heater-on managing unit portion is activated only when the external device is connected. Therefore, it would have been obvious to combine Yokoyama with Stephenson in view of Amoni to obtain the invention as specified in claim 11.

Further regarding claim 12: Yokoyama discloses that the switching unit (figure 1(9) of Yokoyama) switches between standby (column 3, lines 7-9 of Yokoyama) and image fixing mode (column 3, lines 9-14 of Yokoyama). Switching between the two modes requires the interruption of the current to the fixing unit (figure 1(7) and column 3, lines 15-18 of Yokoyama). After the image signal has been processed by the image forming apparatus, said switching unit returns to standby. The electrical power supply is interrupted since it is either lowered in order to keep the temperature of said fixing unit lower (column 3, lines 15-18 of Yokoyama), or said fixing unit is shut off completely (column 3, lines 28-35 of Yokoyama).

Further regarding claim 13: Yokoyama discloses that the switching unit (figure 1(9) of Yokoyama) keeps the fixing unit (figure 1(7) of Yokoyama) at a second temperature, which is lower than the first temperature, in a standby mode (column 3, lines 7-14 and lines 19-32 of Yokoyama). If image data is received, then the fixing unit is provided power so that it can sustain a temperature suitable for fixing the image on the image recording medium (column 3, lines 9-12 and lines 26-32 of Yokoyama). If image data is not received, then a lower

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temperature is achieved for said fixing unit. Said fixing unit is either maintained at a preheat temperature level while the image forming device waits for image data (column 3, lines 7-9 of Yokoyama), or said fixing unit attains room temperature while the image forming device waits for image data (column 3, lines 19-25 of Yokoyama). The particular standby mode depends on whether the heater-on managing unit (figure 1(12) of Yokoyama) portion of the control unit (figure 1(12,13) of Yokoyama) or the heater-off managing unit (figure 1(13) of Yokoyama) portion of the control unit is functioning.

Regarding claim 14: Stephenson discloses that said image forming apparatus comprises a judging unit (figure 2(30 (portion)) of Stephenson) for judging whether an image forming operation has been completed (column 4, lines 13-21 of Stephenson). The portion of the printer electronics (figure 2 (30) of Stephenson) that performs the functions of the judging unit corresponds to the judging unit.

Stephenson does not disclose expressly that the control unit controls the switching unit so as to switch the fixing unit from the fixing mode to the standby mode when the interface controller outputs the second logical level signal and when the judging unit judges that the image forming operation has been completed.

Yokoyama discloses a control unit (figure 1(12,13) of Yokoyama) for controlling the switching unit (figure 1(9) of Yokoyama) so as to switch said fixing unit from the fixing mode to the standby mode when the image signal is completed (column 3, lines 15-18 and lines 33-37 of Yokoyama). Yokoyama further discloses that said control unit controls said switching unit by controlling the level of electrical power provided based on a

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signal related to the time (column 3, lines 1-9 and lines 19-25 of Yokoyama). The signal indicating image completion is used in conjunction with the signal relating to the time to control the temperature of the fixing unit (column 3, lines 1-50 of Yokoyama).

Stephenson and Yokoyama are combinable because they are from the same field of endeavor, namely printer and image forming control. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to switch said fixing unit from fixing mode to standby mode when said fixing unit is not actively needed. The signal indicating image completion, as taught in Yokoyama, is used in the control of the temperature in conjunction with output signal of the interface controller, as taught by Stephenson, instead of the signal related to time, as taught by Yokoyama. Yokoyama teaches that the purpose for using the time signal is so that the image forming device will be on at a pre-heat temperature or off at room temperature (column 1, lines 50-59 of Yokoyama), depending upon the time the image forming device is most likely to be in use (column 2, lines 61-65; column 3, lines 19-25; and column 1, lines 24-26 of Yokoyama). The most likely time for image forming to occur in image forming apparatus taught by Stephenson is when the external device is attached to the image forming apparatus, and thus when the first logical level signal is output. Therefore, it would have been obvious to use the output signal (second logical level signal) from said interface controller, rather than the time signals, in conjunction with the image completion signal for controlling when said fixing unit switches from the fixing mode to the standby mode. The motivation for doing so would have been to conserve the power

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consumed by the printer (column 1, lines 20-24 of Yokoyama) by turning on the power to the fixing unit only when the external device is connected. Therefore, it would have been obvious to combine Yokoyama with Stephenson to obtain the invention as specified in claim 14.

5. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stephenson (US Patent 5,757,388) in view of Amoni (US Patent 5,884,086), Yokoyama (US Patent 5,694,226), and Kawai (US Patent 5,805,780).

Regarding claim 10: Stephenson in view of Amoni and Yokoyama does not disclose expressly that said image forming apparatus further comprises a fee-charging unit for charging a user a fee for forming an image.

Kawai discloses an image forming apparatus (figure 1 of Kawai) that comprises a fee-charging unit (figure 1(8) and column 5, lines 62-65 of Kawai) for charging a user a fee for forming an image (column 5, line 62 to column 6, line 5 of Kawai).

Stephenson in view of Amoni and Yokoyama is combinable with Kawai because they are from the same field of endeavor, namely the printing of image data. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to include an automatic money handling device that collects payment for printing images. The motivation for doing so would have been to be able to automatically collect payment for the printing of an image by a customer (column 5, lines 62-65 of Kawai). Therefore, it would have been obvious to combine Kawai with Stephenson in view of Amoni and Yokoyama to obtain the invention as specified in claim 10.

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6. Claims 15-16, 18-19 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stephenson (US Patent 5,757,388) in view of Amoni (US Patent 5,884,086), Kawai (US Patent 5,805,780), Meese (US Patent 4,532,418), and *In re Larson*, 340 F.2d 965, 968, 144 USPQ 347, 349 (CCPA 1965).

Regarding claim 15: Stephenson discloses an image forming apparatus (figure 2 of Stephenson) comprising a printing unit (figure 4 and column 4, lines 61-64 of Stephenson); and an interface (figure 2(24,24a,28,32) of Stephenson) for connecting the external device (figure 1 of Stephenson) to said image forming apparatus (column 2, lines 50-64 and column 3, lines 25-32 of Stephenson), wherein the image data from the external device is received via the interface (column 3, lines 33-41 of Stephenson); and a control unit (figure 2(30) of Stephenson) that has the printing unit form an image according to the image data from the external device that has been received via the interface (column 3, lines 44-53 of Stephenson).

Stephenson does not mention specifically that said image forming apparatus further comprises a power supplying unit for supplying power. However, said power supplying unit is inherent in the design of the device since, without power, it is impossible for said image forming apparatus to perform any meaningful operation.

Stephenson does not disclose expressly that said power supplying unit supplies power to an external device transmitting image data; that the power is supplied to the external device via the interface; a judging unit for judging whether a charge is to be collected; a control unit for controlling power supplying by the power supplying unit and the image forming by the printing unit according to a judging result from the judging

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unit; and a charge collecting unit for collecting a charge, separate from the charge for the image forming, for the image forming and a charge for an amount of power that has been supplied to the external device.

Amoni discloses that power is supplied to an external device (column 2, lines 32-39 of Amoni) via the interface (column 2, lines 36-39 of Amoni).

Stephenson and Amoni are combinable because they are from the same field of endeavor, namely the transmission of electronic data between electronic devices. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use an enhanced USB connector (figure 7 and column 2, lines 36-39 of Amoni) for the transmission of both data and power between the external device and the image forming device. The motivation for doing so would have been to provide both power and data transmission in an efficient manner that does not require separate electrical power connections for each device (column 1, lines 31-36 and column 2, lines 32-39 of Amoni). Therefore, it would have been obvious to combine Amoni with Stephenson.

Stephenson in view of Amoni does not disclose expressly a judging unit for judging whether a charge is to be collected; a control unit for controlling power supplying by the power supplying unit and the image forming by the printing unit according to a judging result from the judging unit; and a charge collecting unit for collecting a charge for the image forming and a charge, separate from the charge for the image forming, for an amount of power that has been supplied to the external device.

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Kawai discloses a judging unit (figure 1(8) and column 5, lines 54-55 of Kawai) for judging whether a charge is to be collected (column 5, lines 62-67 of Kawai); and a control unit (figure 1(7) of Kawai) for controlling the power supplying by a power supplying unit (figure 1(10) of Kawai) and image forming by a printing unit (figure 1(9) and column 5, lines 55-56 of Kawai) according to a judging result by the judging unit (column 5, lines 65-67 and column 6, lines 6-7 of Kawai). Since said power supplying unit operates to feed power to various components (column 6, lines 6-7 of Kawai), said power supplying unit is controlled by the control unit.

Kawai further discloses a charge collecting unit (figure 1 (8) and column 5, lines 54-55 of Kawai) for collecting a charge for the operation of the image forming apparatus (column 5, line 62 to column 6, line 7; and column 7, lines 27-29 of Kawai). The operation of the apparatus includes both forming the image (column 5, line 62 to column 6, line 5; and column 7, lines 27-29 of Kawai) and supplying the power to operate the necessary components (column 6, lines 6-7 of Kawai). Furthermore, the charge collecting unit (figure 1(8) and column 5, lines 54-55 of Kawai) performs the function of a judging unit for judging whether a charge is to be collected. Said money handling unit sends a start signal to the controller (figure 1(7) of Kawai) when the user has given the proper fee to said money handling unit (column 5, lines 62-65 of Kawai).

Stephenson in view of Amoni is combinable with Kawai because they are from the same field of endeavor, namely the control of image forming and printing apparatuses. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use a unit to handle monetary

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transactions, said unit controlling the device that forms an image and the power supply that is needed to deliver power to the necessary components required to form the image. The motivation for doing so would have been to be able to automatically collect payment for the printing of an image by a customer (column 5, lines 62-65 of Kawai). Therefore, it would have been obvious to combine Kawai with Stephenson in view of Amoni.

Stephenson in view of Amoni and Kawai does not expressly disclose that the charge collecting unit and the judging unit are separate units; and that said charge for an amount of power that has been supplied to the external device is separate from the charge for the image forming.

Meese discloses a handling unit that collects payment for the supplying of electrical power (column 2, lines 9-15 of Meese).

Stephenson in view of Amoni and Kawai is combinable with Meese because they are from similar problem solving areas, namely the automated collecting of payments for providing services. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to include a separate handling unit for handling money so that the additional charge for the amount of electrical power that is supplied to an external device can be collected, as taught by Meese; and have said control unit taught by Kawai allow the purchasing of electrical power, if there is sufficient money paid to the handling unit. The motivation for doing so would have been to facilitate the easy collection of payments for the service of providing the electricity that an external device requires for operation (column 1, lines 39-42 of Meese). Therefore, it would

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have been obvious to combine Meese with Stephenson in view of Amoni and Kawai.

Stephenson in view of Amoni, Kawai and Meese does not expressly disclose that the charge collecting unit and the judging unit are separate units. However, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the charge collecting unit and the judging unit into one integrated unit since *In re Larson*, 340 F.2d 965, 968, 144 USPQ 347, 349 (CCPA 1965) has held that it is an obvious design choice to make components integral if doing so does not create any useful and novel result. Therefore, it would have been obvious to combine the charge collecting unit and the judging unit into one integrated unit, and thus obtain the invention as disclosed in claim 15.

Further regarding claim 16: Kawai discloses that the control unit (figure 1(7) of Kawai) has the printing unit (figure 1(9) and column 5, lines 55-56 of Kawai) form the image and has the power supplying unit (figure 1(10) of Kawai) supply the power when the judging unit (figure 1(8) and column 5, lines 54-55 of Kawai) judges that the charge is to be collected (column 5, lines 65-67; column 6, lines 6-7; and column 19, lines 4-7 and lines 23-26 of Kawai). When the start signal is given, the controller (figure 1(7) of Kawai) operates the printer (figure 1(9) and column 19, lines 23-26 of Kawai) for the purpose of printing out an image based on received image data (column 19, lines 4-6 of Kawai). Said start signal also causes the controller (figure 1(7) of Kawai) to control said power supplying unit since said power supplying unit is required to feed power to the components that are necessary to form the image (column 6, lines 6-7 of Kawai).

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Further regarding claim 18: Kawai discloses that the charge collecting unit includes a handling unit (figure 1(8) and column 5, lines 54-55 of Kawai). Money of some form is input into the money handling machine (column 5, lines 62-65 of Kawai). Said handling unit collects the proper fee for the operation of the overall apparatus taught by Kawai (column 5, lines 62-63 of Kawai). While the proper fee is being collected in the handling unit, said handling unit performs the function of a judging unit for judging whether a charge is to be collected. Said money handling unit sends a start signal to the controller (figure 1(7) of Kawai) when the user has completed inserting the proper fee, thus starting the operation of aspects of the overall apparatus taught by Kawai (column 5, lines 62-67 of Kawai).

Regarding claim 19: Stephenson in view of Amoni does not disclose expressly that the handling unit includes first and second handling units; and that the control unit permits the image forming when money has been input into the first handling unit and permits the power supplying when money has been input into the second handling unit.

Kawai discloses a first handling unit (figure 1(8) and column 5, lines 54-55 of Kawai). Money of some form is input into said money handling machine (column 5, lines 62-65 of Kawai). Said money handling machine collects the proper fee for the operation of the overall apparatus taught by Kawai (column 5, lines 62-63 of Kawai).

Kawai further discloses a control unit (figure 1(7) of Kawai) that permits the forming of an image when the appropriate fee has been paid (column 5, line 62 to column 6, line 7 of Kawai) to said first handling unit.

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Stephenson in view of Amoni is combinable with Kawai because they are from the same field of endeavor, namely the control of image forming and printing apparatuses. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to include in a unit the functions necessary to collect monetary charges for both the formation of an image. The motivation for doing so would have been to be able to automatically collect payment for the printing of an image by a customer (column 5, lines 62-65 of Kawai). Therefore, it would have been obvious to combine Kawai with Stephenson in view of Amoni.

Stephenson in view of Amoni and Kawai does not disclose expressly a second handling unit that handles money input for the purpose of purchasing electrical power; and that the controlling unit permits power supplying when money has been put into said second handling unit.

Meese discloses a handling unit that collects payment for the supplying of electrical power (column 1, lines 39-43 of Meese).

Stephenson in view of Amoni and Kawai and *In re Larson* is combinable with Meese because they are from similar problem solving areas, namely the automated collecting of payments for providing services. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to include a second handling unit for handling money so that the additional charge for the amount of electrical power that is supplied to an external device can be collected, as taught by Meese; and have said control unit taught by Kawai allow the purchasing of electrical power, if there is sufficient money paid to the second handling unit. The motivation for doing so would have

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been to facilitate the easy collection of payments for the service of providing the electricity that an external device requires for operation (column 1, lines 39-42 of Meese).

Therefore, it would have been obvious to combine Meese with Stephenson in view of Amoni and Kawai to obtain the invention as specified in claim 19.

Regarding claim 23: Stephenson discloses an image forming apparatus (figure 2 of Stephenson) comprising a printing unit (figure 4 and column 4, lines 61-64 of Stephenson); and an interface (figure 2(24,24a,28,32) of Stephenson) for connecting the external device (figure 1 of Stephenson) to said image forming apparatus (column 2, lines 50-64 and column 3, lines 25-32 of Stephenson), wherein the image data from the external device is received via the interface (column 3, lines 33-41 of Stephenson); and a control unit (figure 2(30) of Stephenson) that has the printing unit form an image according to the image data from the external device that has been received via the interface (column 3, lines 44-53 of Stephenson).

Stephenson does not mention specifically that said image forming apparatus further comprises a power supplying unit for supplying power. However, said power supplying unit is inherent in the design of the device since, without power, it is impossible for said image forming apparatus to perform any meaningful operation.

Stephenson does not disclose expressly that said power supplying unit supplies power to an external device transmitting image data; that the power is supplied to the external device via the interface; a judging unit for judging whether a charge is to be collected; a control unit for controlling power supplying by the power supplying unit and the image forming by

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the printing unit according to a judging result from the judging unit; and a charge collecting unit for collecting a charge for the image forming and a charge for an amount of power that has been supplied to the external device, wherein a charge for image forming is collected if image forming is performed without power being supplied to the external device, and a charge for the amount of power that has been supplied to the external device is collected if power is supplied to the external device without image forming being performed by the image forming apparatus.

Amoni discloses that power is supplied to an external device (column 2, lines 32-39 of Amoni) via the interface (column 2, lines 36-39 of Amoni).

Stephenson and Amoni are combinable because they are from the same field of endeavor, namely the transmission of electronic data between electronic devices. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use an enhanced USB connector (figure 7 and column 2, lines 36-39 of Amoni) for the transmission of both data and power between the external device and the image forming device. The motivation for doing so would have been to provide both power and data transmission in an efficient manner that does not require separate electrical power connections for each device (column 1, lines 31-36 and column 2, lines 32-39 of Amoni). Therefore, it would have been obvious to combine Amoni with Stephenson.

Stephenson in view of Amoni does not disclose expressly a judging unit for judging whether a charge is to be collected; a control unit for controlling power supplying by the power supplying unit and the image forming by the printing unit according to a judging result from the judging unit; and a

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charge collecting unit for collecting a charge for the image forming and a charge for an amount of power that has been supplied to the external device, wherein a charge for image forming is collected if image forming is performed without power being supplied to the external device, and a charge for the amount of power that has been supplied to the external device is collected if power is supplied to the external device without image forming being performed by the image forming apparatus.

Kawai discloses a judging unit (figure 1(8) and column 5, lines 54-55 of Kawai) for judging whether a charge is to be collected (column 5, lines 62-67 of Kawai); and a control unit (figure 1(7) of Kawai) for controlling the power supplying by a power supplying unit (figure 1(10) of Kawai) and image forming by a printing unit (figure 1(9) and column 5, lines 55-56 of Kawai) according to a judging result by the judging unit (column 5, lines 65-67 and column 6, lines 6-7 of Kawai). Since said power supplying unit operates to feed power to various components (column 6, lines 6-7 of Kawai), said power supplying unit is controlled by the control unit.

Kawai further discloses a charge collecting unit (figure 1 (8) and column 5, lines 54-55 of Kawai) for collecting a charge for the operation of the image forming apparatus (column 5, line 62 to column 6, line 7; and column 7, lines 27-29 of Kawai). The charge collecting unit (figure 1(8) and column 5, lines 54-55 of Kawai) performs the function of a judging unit for judging whether a charge is to be collected. Said money handling unit sends a start signal to the controller (figure 1(7) of Kawai) when the user has given the proper fee to said money handling unit (column 5, lines 62-65 of Kawai).

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Stephenson in view of Amoni is combinable with Kawai because they are from the same field of endeavor, namely the control of image forming and printing apparatuses. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use a unit to handle monetary transactions, said unit controlling the device that forms an image. The motivation for doing so would have been to be able to automatically collect payment for the printing of an image by a customer (column 5, lines 62-65 of Kawai). Therefore, it would have been obvious to combine Kawai with Stephenson in view of Amoni.

Stephenson in view of Amoni and Kawai does not expressly disclose that the charge collecting unit and the judging unit are separate units; and that said charge collecting unit collects a charge for an amount of power that has been supplied to the external device, wherein a charge for image forming is collected if image forming is performed without power being supplied to the external device, and a charge for the amount of power that has been supplied to the external device is collected if power is supplied to the external device without image forming being performed by the image forming apparatus.

Meese discloses a handling unit that collects a separate payment (column 2, lines 16-22 of Meese) solely for the supplying of electrical power (column 2, lines 9-15 of Meese). If no power is supplied, no charge is accrued for supplying power.

Stephenson in view of Amoni and Kawai is combinable with Meese because they are from similar problem solving areas, namely the automated collecting of payments for providing services. At the time of the invention, it would have been

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obvious to a person of ordinary skill in the art to include a separate handling unit for handling money so that the additional charge for the amount of electrical power that is supplied to an external device can be collected, as taught by Meese; and have said control unit taught by Kawai allow the separate purchasing of electrical power, if there is sufficient money paid to the handling unit. Thus, if there is no power supplied to the external device, then only a charge for image forming is collected if image forming is performed. Further, since the electrical power supply charge is separate from other provided services, as taught by Meese, a charge for the amount of power that has been supplied to the external device is collected if power is supplied to the external device without image forming being performed by the image forming apparatus. The motivation for doing so would have been to facilitate the easy collection of payments for the service of providing the electricity that an external device requires for operation (column 1, lines 39-42 of Meese). Therefore, it would have been obvious to combine Meese with Stephenson in view of Amoni and Kawai.

Stephenson in view of Amoni, Kawai and Meese does not expressly disclose that the charge collecting unit and the judging unit are separate units. However, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the charge collecting unit and the judging unit into one integrated unit since *In re Larson*, 340 F.2d 965, 968, 144 USPQ 347, 349 (CCPA 1965) has held that it is an obvious design choice to make components integral if doing so does not create any useful and novel result. Therefore, it would have been obvious to combine the charge collecting unit

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and the judging unit into one integrated unit, and thus obtain the invention as disclosed in claim 23.

7. Claims 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Stephenson (US Patent 5,757,388) in view of Amoni (US Patent 5,884,086), Kawai (US Patent 5,805,780), and Meese (US Patent 4,532,418).

Regarding claim 20: Stephenson does not mention specifically a power supply apparatus. However, some form of power supplying apparatus comprising a power supplying unit is inherent in the design of the device since both the camera (figure 1 of Stephenson) and the printer (figure 2 of Stephenson) require power. Otherwise, it is impossible for the camera or the printer to perform any meaningful operation.

Stephenson further discloses an external device (figure 1 of Stephenson) that transmits image data (column 3, lines 33-40 of Stephenson); and a printing unit (figure 4 of Stephenson) for forming an image according to the image data from said external device (column 4, line 61 to column 5, line 4 of Stephenson) that has been received via the connector (figure 3(20) and column 2, lines 40-49 of Stephenson).

Stephenson does not disclose expressly that said power supply unit generates power that is to be supplied to the external device; a connector for connecting the external device to the power supply apparatus, wherein the image data from the external device is received via said connector and the power from the power supplying unit is supplied to the external device via said connector; and a charge collecting unit for collecting a charge for an amount of the power that has been supplied to the external device.

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Amoni discloses that power is supplied to an external device (column 2, lines 32-39 of Amoni) via an interface (column 2, lines 36-39 of Amoni). A power supply unit is used to supply said power (figure 2(201); column 3, line 66 to column 4, line 11; and column 4, lines 51-54 of Amoni).

Amoni further discloses a connector (figure 7 of Amoni) for connecting the external device to the power supply apparatus (column 2, lines 32-39 of Amoni), wherein the image data from the external device is received via said connector and the power from the power supplying unit is supplied to the external device via said connector (column 2, lines 36-39 of Amoni).

Stephenson and Amoni are combinable because they are from the same field of endeavor, namely the transmission of electronic data between electronic devices. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use an enhanced USB connector (figure 7 and column 2, lines 36-39 of Amoni) for the transmission of both data and power between the external device (figure 1 of Stephenson) and the image forming device (figure 2 of Stephenson). The motivation for doing so would have been to provide both power and data transmission in an efficient manner that does not require separate electrical power connections for each device (column 1, lines 31-36 and column 2, lines 32-39 of Amoni). Therefore, it would have been obvious to combine Amoni with Stephenson.

Stephenson in view of Amoni does not disclose expressly a charge collecting unit for collecting a charge for an amount of the power that has been supplied to the external device.

Kawai discloses a charge collecting unit (figure 1(8) and column 5, lines 54-55 of Kawai). Said charge collecting unit

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collects a charge for the operation of an image forming device (column 5, line 62 to column 6, line 7 of Kawai).

Stephenson in view of Amoni is combinable with Kawai because they are from the same field of endeavor, namely the control of image forming and printing apparatuses. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use a unit to handle monetary transactions, said unit controlling the device that forms an image and the power supply that is needed to deliver power to the necessary components required to form the image. The motivation for doing so would have been to be able to automatically collect payment for the printing of an image by a customer (column 5, lines 62-65 of Kawai). Therefore, it would have been obvious to combine Kawai with Stephenson in view of Amoni.

Stephenson in view of Amoni and Kawai does not disclose expressly that the charge collected by said charge collecting unit is a charge for power that has been supplied to the external device.

Meese discloses a unit that collects a charge for an amount of power that has been supplied to an external device (column 1, lines 39-43 of Meese). Meese teaches that an external device, such as an electric car, is provided with power in exchange for the payment of a charge via a device (column 1, lines 39-43 of Meese).

Stephenson in view of Amoni and Kawai is combinable with Meese because they are from the same field of endeavor, namely the control and supply of external devices. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use the charge handling unit for the purpose

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of charging for the power supplied to the external device. The motivation for doing so would have been to be able to automatically collect payment for the amount of electricity that the customer requires to recharge the external device that is owned by said customer (column 1, lines 39-43 of Meese). Therefore, it would have been obvious to combine Meese with Stephenson in view of Amoni and Kawai to obtain the invention as specified in claim 20.

Regarding claim 21: Stephenson discloses a printing unit (figure 4 of Stephenson) for receiving image data from the external device (figure 1 of Stephenson) and forming an image (column 3, lines 41-48 of Stephenson). Stephenson further discloses a connection detecting step for detecting whether said external device has been connected to the image forming apparatus (figure 2 and column 4, lines 13-21 of Stephenson), which is supplied power by a power supplying apparatus. The fact that said image forming apparatus is supplied power by a power supplying apparatus is inherent since, without some form of power supplying apparatus to supply power, it would be impossible for the image forming apparatus to perform any meaningful function.

Stephenson discloses an image forming step where the printing unit forms an image (column 3, lines 25-32 of Stephenson) when a judging step has judged that the image is to be formed (column 2, lines 45-49 of Stephenson), said image being formed according to the image data (column 3, lines 33-36 of Stephenson).

Stephenson does not disclose expressly a connection detecting step for detecting whether the external device has been connected to the power supply apparatus; a judging step for

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judging one of that the power is to be supplied to the external device which has been connected to the power supply apparatus; a power supplying step for supplying the power to the external device when the judging step has judged that the power is to be supplied to the external device; and a charge collecting step for collecting a charge for an amount of the power that has been supplied by the power supply apparatus and a charge, separate from the charge for the amount of the power that has been supplied, for image forming by the printing unit.

Amoni discloses supplying power to an external device via a connector (figure 7; column 2, lines 36-39; and column 4, lines 51-60 of Amoni). The step of supplying power to the external device occurs after a connection step has detected that said connector is connected to the device. Power requirements are sent to the power supply from the external device (column 2, lines 40-44 of Amoni). The transmission of this data would inherently verify the fact that the external device is connected. Furthermore, since the power supply supplies power to the entire device by supplying all needed voltages (column 4, lines 51-54 of Amoni), said power supply would necessarily be connected to the connector. When the switches and electronics have judged that the external device is connected and requires power, said power supply unit then supplies the needed power (column 2, lines 40-44 of Amoni).

Stephenson and Amoni are combinable because they are from the same field of endeavor, namely the transmission of electronic data between electronic devices. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use an enhanced USB connector (figure 7 and column 2, lines 36-39 of Amoni) for the transmission of power

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between the external device (figure 1 of Stephenson) and the power supply. Thus the connecting step taught by Stephenson would therefore also, by detecting a connection between the external device and the image forming apparatus, be detecting that the external device has been connected to the power supply apparatus; and the judging step taught by Stephenson would be further judging when the power is to be supplied to the external device. The motivation for doing so would have been to provide the required power transmission in an efficient manner that does not require separate electrical power connections for each device (column 1, lines 31-36 and column 2, lines 32-39 of Amoni). Therefore, it would have been obvious to combine Amoni with Stephenson.

Stephenson in view of Amoni does not disclose expressly a charge collecting step for collecting a charge for an amount of the power that has been supplied by the power supply apparatus and a charge, separate from the charge for the amount of the power that has been supplied, for image forming by the printing unit.

Kawai discloses a charge collecting step for collecting a charge for image forming by a print unit (column 5, line 62 to column 6, line 7 of Kawai).

Stephenson in view of Amoni is combinable with Kawai because they are from the same field of endeavor, namely the control of image forming and printing apparatuses. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use a unit to handle monetary transactions, said unit controlling the device that forms an image. The motivation for doing so would have been to be able to automatically collect payment for the printing of an image by

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a customer (column 5, lines 62-65 of Kawai). Therefore, it would have been obvious to combine Kawai with Stephenson in view of Amoni.

Stephenson in view of Amoni and Kawai does not disclose expressly a separate charge collected, which is a charge for power that has been supplied to the external device.

Meese discloses collecting a specific, separate charge for an amount of power that has been supplied to an external device (column 1, lines 39-43 of Meese). Meese teaches that an external device, such as an electric car, is provided with power in exchange for the payment of a charge via a device (column 1, lines 39-43 of Meese).

Stephenson in view of Amoni and Kawai is combinable with Meese because they are from the same field of endeavor, namely the control and supply of external devices. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use the charge handling unit for the purpose of separately charging for the power supplied to the external device. The motivation for doing so would have been to be able to automatically collect payment for the amount of electricity that the customer requires to recharge the external device that is owned by said customer (column 1, lines 39-43 of Meese). Therefore, it would have been obvious to combine Meese with Stephenson in view of Amoni and Kawai to obtain the invention as specified in claim 21.

Regarding claim 22: Stephenson in view of Amoni does not disclose expressly that it is judged that money has been put for one of power supplying and image forming at the judging step.

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Kawai discloses that it is judged that money has been put for image forming at the judging step (column 5, line 62 to column 6, line 7 of Kawai).

Stephenson in view of Amoni is combinable with Kawai because they are from the same field of endeavor, namely the control of image forming and printing apparatuses. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to judge whether or not money had been put for image forming. The motivation for doing so would have been to determine whether or not the proper fee had been collected for the image forming operation from a customer (column 5, lines 62-65 of Kawai). Therefore, it would have been obvious to combine Kawai with Stephenson in view of Amoni.

Stephenson in view of Amoni and Kawai does not disclose expressly that it is judged that money has been put for power supplying at the judging step.

Meese discloses that it is judged that money has been put for power supplying (column 1, lines 44-47 of Meese).

Stephenson in view of Amoni and Kawai is combinable with Meese because they are from the same field of endeavor, namely the control and supply of external devices. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to judge whether or not money had been put for image forming. The motivation for doing so would have been to determine whether or not the proper fee had been collected for the supplied power from a customer (column 1, lines 44-47 of Meese). Therefore, it would have been obvious to combine Meese with Stephenson in view of Amoni and Kawai to obtain the invention as specified in claim 22.

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Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James A. Thompson whose telephone number is 571-272-7441. The examiner can normally be reached on 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David K. Moore can be reached on 571-272-7437. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

James A. Thompson
Examiner
Art Unit 2624

02 September 2005




THOMAS D.
LEEE
PRIMARY EXAMINER